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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,536	12/22/2000	Mun Keung Leung	1190-2112	2137

27045 7590 05/12/2004

ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR C11
PLANO, TX 75024

EXAMINER

SCHEIBEL, ROBERT C

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 05/12/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/745,536

Applicant(s)

LEUNG, MUN KEUNG

Examiner

Robert C. Scheibel

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date, _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - “designation address” on line 10 of page 10 should be changed to “destination address”;
 - “lenght/type” on line 8 of page 11 should be changed to “length/type”;
 - “port 70A” on lines 12-13 of page 13 should be changed to “port 78”.

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the limitation of claims 11, 23, and 34 that “said weighting factors are determined according to values of selected attributes associated with said data packets” is not described in the specification. The specification describes how these weighting factors are applied, but not how they are determined.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims **1-4, 6-16, 18-27, and 29-34** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2004/0076161 to Lavian et al.

Regarding claims **1, 13, and 24**, Lavian discloses a VLAN aware device (claims 1 and 13) and the VLAN environment (claim 24) in the packet forwarding device 17 of Figure 1. Lavian indicates that the packet forwarding device is VLAN aware (and thus in a VLAN environment) in lines 1-9 of paragraph 18 on page 2. The step of, means for, and logic means for receiving a data packet are anticipated by step 91 of Figure 3. Lavian discloses the step of, means for, and logic means for examining a plurality of attributes associated with the data packet in lines 4-8 of paragraph 4 on page 1 and lines 11-15 of paragraph 18 of page 2. Lavian also discloses the step of, means for, and logic means for modifying a priority queue of the data packet in relation to the nature of said attributes in these same passages (lines 4-8 of paragraph 4 on page 1 and lines 11-15 of paragraph 18 of page 2). The attributes (bandwidth consumption, whether the packet is part of a particular IP flow, whether the packet is destined for a particular port, VLAN, or MAC address) are clearly examined in order to specify the priority queuing based on them; more details of the examination of the attributes are shown in Figure 4 as discussed in more detail below. Lines 4-8 of paragraph 4 on page 1 clearly indicate that the priority queue to which a particular packet is sent is changed based on the bandwidth consumption.

Before discussing the rest of the claims, the following is more detailed explanation of how Figure 4 discloses the step of examining. Blocks 119-125 of Figure 4 clearly examine various attributes associated with a data packet. Step 127 of Figure 4

updates a bit in the table which is subsequently used in determining which packets are stored in priority queues and which are stored in best effort queues.

Regarding claims **2, 14, and 25**, the limitation that one of the attributes examined is a port number in a transport layer is disclosed in lines 17-27 of paragraph 26 on page 3 which indicates that part of the forwarding information used in Figure 4 includes the TCP port which is associated with a transport layer (TCP). Additionally, element 119 of Figure 4 also examines the physical port. Since the claim language and the specification don't clearly define the use of transport layer, this can also be a port number in a transport layer since the physical layer is involved in the transport of the packet to the neighboring device.

Regarding claims **3, 15, and 26**, the limitation that one of the attributes is a type of service is disclosed in lines 4-8 of paragraph 4 on page 1. This passage indicates that the assignment of packets to queues applies to a type of traffic which is equivalent to a type of service.

Regarding claims **4, 16, and 27**, the limitation that one of the attributes examined is a protocol of a network layer is disclosed in lines 33-35 of paragraph 27 on page 3. This indicates that the particular IP (network layer) protocol is used in determining the priority queuing.

~~Regarding claims **5, 17, and 28**, *** de 103 w/ Hoffman...~~

Regarding claims **6, 18, and 29**, the limitation that one of the attributes examined is the network traffic load is disclosed in the abstract and in lines 4-8 of paragraph 4 on page 1. The bandwidth consumption is the network traffic load.

Regarding claims **7, 19, and 30**, the limitation that the step of modifying moves the data packet to a lower priority queue is disclosed in lines 10-12 of paragraph 38 on page 5 which indicate the traffic being reassigned from the priority queue (higher) to the best effort queue (lower).

Regarding claims **8, 20, and 31**, the limitation that the step of modifying moves the data packet to a higher priority queue is disclosed in lines 7-11 of paragraph 39 on page 5 which indicate the traffic being reassigned from the best effort queue (lower) to the priority queue (higher).

Regarding claims **9, 21, and 32**, the limitation that the step of modifying keeps the data packet in the same priority queue is taught in paragraphs 34-39 on pages 4-5. It is clear from this discussion that if the line utilization doesn't exceed the thresholds used to determine when to change the priority, the priority will stay the same.

Regarding claims **10, 22, and 33**, the limitation that the step of modifying includes the step of applying weighting factors to selected attributes associated with the data packets is disclosed in paragraph 42 on page 5. Specifically, lines 5-8 indicate that different queue assignment criteria can be used by different policy enforcement applets. This effectively weights different attributes greater than others in one applet as compared to the other. Additionally, paragraph 38 on page 5 describes another implementation of the weighting of certain attributes over others. This paragraph provides an example using traffic to 2 different MAC addresses (A and B) as well as a server. If the combined traffic to A and B exceeds a threshold, the traffic to address A is put in a different (lower) priority queue. This example indicates that the implied weight

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given to the joint traffic load as applied to traffic addressed to A is different than it is as applied to traffic addressed to B; reaching this threshold changes the handling of traffic addressed to A, but does not change the handling of traffic addressed to B.

Regarding claims **11, 23, and 34**, the limitation that said weighting factors are determined according to values of selected attributes associated with said data packets is disclosed by Lavian. As described in the rejection of claims 10, 22, and 33 above, the weight given to joint traffic load is different for traffic to A and B. This discloses that the weighting factor is determined based on one of the attributes associated with the packet (the address).

Regarding claim **12**, it is clear from the entire document that these steps are to be performed dynamically. Consider as an example, lines 1-2 of paragraph 34 on page 4.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims **5, 17, and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2004/0076161 to Lavian et al in view of U.S. Patent 6,094,435 to Hoffman et al.

Lavian discloses all the limitations of the parent claims 1, 13, and 24 as discussed in the rejection under 35 U.S.C. 102 (e) above. Lavian does not disclose expressly the limitation that one of the attributes examined in the step of examining a plurality of attributes associated with the data packet is a priority tag (claims 5, 17, and 28). Hoffman discloses this limitation in lines 33-36 of column 19. Here, Hoffman describes that the VLAN tag is used to determine the global priority information. As described elsewhere in Hoffman (see line 54 of column 19 through line 28 of column 20), the global priority is used to determine the queue to place the associated packet.

Lavian and Hoffman are analogous art because they are from the same field of endeavor of buffer management and specifically, the assignment of data packets to priority queues in a communications device. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Lavian to use the VLAN tag as an additional attribute in Figure 4 for determining whether to set the priority bit. The motivation for doing so would have been for improved performance as suggested by Hoffman in lines 27-32 of column 4. Hoffman explains that parsing layer 3 headers reduces performance in network switching elements; the VLAN tag is at layer 2 and would allow better performance than parsing the layer 3 header to determine the appropriate priority for the packet.

Therefore, it would have been obvious to combine Hoffman with Lavian for the benefit of improved performance to obtain the invention as specified in claims 5, 17, and 28.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,567,417 to Kalkunte et al and U.S. Patent 6,707,818 to Kadambi et al disclose methods of mapping the priority of a VLAN tag to priority queues in the device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 703-305-9062. The examiner can normally be reached on 6:30-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 703-308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RCs 5-6-04
Robert C. Scheibel
Examiner
Art Unit 2666

Seema S. Rao
SEEMA S. RAO 519104
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800